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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,714	06/25/2003	Ramam Akkipeddi	4249-0110P	9942
2292	7590	05/24/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/602,714

Applicant(s)

AKKIPEDDI ET AL.

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5 and 8-19 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,8-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/3/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-8) in the reply filed on 3/13/06 is acknowledged. The traversal is on the ground(s) that searching both the inventions should not be serious burden to the examiner because of the overlapping search. This is not found persuasive because the inventions are distinct and the reasons are provided in the previous office action showing that they have acquired a separate status in the art as shown by their different classification.

The requirement is still deemed proper and is therefore made FINAL.

### ***Response to Arguments***

2. Applicant's arguments filed 3/13/06 have been fully considered but they are not persuasive. Applicants argue that Ota (USP 6,411,636) does not teach cutting linear grooves into surface by laser beam and also does not teach the substrate is within the claimed range of 350-400  $\mu\text{m}$ .

In response to the argument, examiner point out that Ota teaches forming grooves into substrate by irradiating the substrate with laser beam (col.8, lines 19-39 and also the rejection).

Examiner also noted that Ota teaches the claimed substrate thickness (col.5, lines 3-6 and also see the rejection).

As to Cervantes (USP 6,379,985), applicant's argument is persuasive to withdraw the rejection based on Cervantes because Cervantes does not teach the claimed substrate thickness.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ichihara (USP 5,814,532).

Ichihara discloses a method of fabricating a laser device including the steps of forming a GaN base material layer on a sapphire substrate, wherein the method comprises grooves of 50  $\mu\text{m}$  can be formed on to the substrate using saw blade or **laser beam** or etching and cleaving the substrate and the GaN-based material layer along vertical planes (col.2, lines 19-31 and lines 49-65 and col.5, lines 37-55).

5. Claims 1,5,16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Ota et al (6,411,636).

Ota et al disclose a process of fabricating a cleaved facet of a nitride semiconductor laser device, wherein the process including the steps of growing a group III nitride layer such GaN layer on a C-face of a sapphire substrate having thickness of about 100  $\mu\text{m}$  (col.4, lines 9-36).

Ota et al also disclose that cleavage is performed by forming scribing lines or linear grooves in the vertical planes or a-planes ((11-20) plane) of the substrate (col.4, lines 45-55).

Ota et al teach that scribing lines are formed by irradiating the substrate with laser beam with sufficient energy in order to form grooves at predetermined depth and length (col.8, lines 19-39).

Ota et al teach that the sapphire substrate can be cleaved at a thickness of 250 to 350  $\mu\text{m}$  (col.5, lines 3-5).

Ota et al also teach that the sapphire substrate is then cleaved in the direction shown in figure 12 by using the grooves (G) as a starting point (col.8, lines 41-44).

As to claims 16-18, Ota et al teach that a plurality of GaN-based layers including GaN, InGaN and AlGaIn are formed on the substrate (col.5, lines 29-35).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al (6,411,636).

Ota et al disclose above in the paragraph 4 but remain silent regarding the specific power range and density of the laser beam applied during the cutting or groove-forming step.

However, Ota et al teach that energy density and the duration of the irradiation using the laser beam is monitored and controlled during the cutting or forming the groove G at a predetermined depth and length and irradiation with laser beam or scribing can be repeatedly perform in accordance with the pitch of the device length of the nitride semiconductor laser (col.8, lines 23-39).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to optimize the laser ablation parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 8, Ota et al teach the grooves having a micron-order curvature governs cleavability (col.9, lines 1-3), which broadly reads on the claimed range.

### ***Conclusion***

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 5/3/06 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

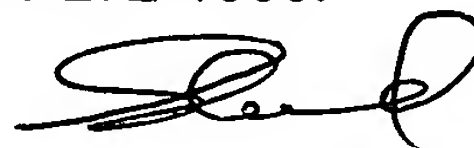
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shamim Ahmed  
Primary Examiner  
Art Unit 1765

SA  
May 20, 2006